

CLAIMS

Claims 1 – 34 (Cancelled).

Claim 35 (Currently Amended): A procedure for layered composition of a metal casting mould, comprising the steps of:

- a) mixing solid particles of a bonding agent comprising a salt-crystal or a salt-crystal and protein combination, with a sand that comprises quartz sand, zircon sand, olivine sand, fireclay sand, or a combination thereof, to form a bonding agent/sand admixture;
- b) applying a thin layer of the bonding agent/sand admixture to an assembly field of an assembly platform;
- c) selectively applying an aqueous solvent via a droplet generator to a cross-sectional area of the metal casting mould being generated, in a sufficient dose so that the sand is bound by the salt-crystal and protein combination without impairing the outline and accuracy of the metal casting mould on the assembly field of the assembly platform;[[.]]
- d) dissolving with the aqueous solvent the salt-crystal or salt-crystal and protein combination with the aqueous solvent, so that the salt-crystal or salt-crystal and protein combination substantially encompasses the sand particles within a layer and [[to]]any underlying sand particles that may be present;
- e) removing through drying the aqueous solvent so that the bonding agent/sand admixture bind together;
- f) lowering the assembly platform;
- g) repeating at least steps (a)-(e) for applying an additional layer until the metal casting mould is complete;
- h) casting a metal casting from the resulting metal casting mould;
- i) coring the metal casting through [[the]] immersion in a water bath after the metal casting has been cast;
- j) dissolving the bonding agent/sand admixture in the water bath; and
- k) recycling the sand from the water bath.

Claim 36 (Currently Amended): The procedure according to claim 35, whereby whereby wherein the solvent is [[dried]]removed by applying microwave radiation heating or warm air.

Claim 37 (Previously Presented): The procedure according to claim 35, whereby the bonding agent comprises at least magnesium sulphate or sodium polyphosphate.

Claim 38 (New): The procedure according to claim 35, wherein the salt-crystal and protein combination comprises 3 percent by weight water before the salt-crystal and protein combination is applied to the assembly platform.

Claim 39 (New): The procedure according to claim 35, wherein the step of removing begins after a sufficient amount of reaction time has elapsed.

Claim 40 (New): The procedure according to claim 35, wherein the casting mould is sufficiently dried so that boiling retardation is prevented.

Claim 41 (New): The procedure according to claim 39, wherein the casting mould is sufficiently dried so that boiling retardation is prevented.

Claim 42 (New): A method for producing a model comprising:

- a) mixing solid particles of a bonding agent comprising a salt-crystal, a protein, or both, with particles of sand the particles of sand including: quartz sand, zircon sand, olivine sand, fireclay sand, or a combination thereof, to form a bonding agent/sand admixture;
- b) applying a thin layer of the bonding agent/sand admixture to an assembly field of an assembly platform;

- c) selectively applying a solvent to a cross-sectional area of the thin layer of the bonding agent/sand admixture, in a sufficient dose so that it is capable of bonding the particles of sand within a layer to each other, to underlying sand particles that may be present, to the bonding agent/sand admixture in required areas for reacting it with the bonding agent/sand admixture, or a combination thereof;
- d) drying the particles of sand so that the solvent is removed;
- e) lowering the assembly platform; and
- f) repeating at least steps (a)-(e) for applying an additional layer until the model is complete.

Claim 43 (New): The procedure of claim 42, further including a step of recycling the sand from the resulting mould.

Claim 44 (New): The method of claim 42, wherein the solvent dissolves the bonding agent so that the particles of sand are coated with the bonding agent.

Claim 45 (New): The method of claim 42, wherein the solvent essentially comprises water.

Claim 46 (New): The method of claim 45, wherein the solvent is applied by a droplet generator.

Claim 47 (New): The method of claim 45, wherein the solvent is applied by screen printing or spraying through a template.

Claim 48 (New): The method of claim 42, wherein the solvent is removed by drying after an appropriate reaction time has elapsed.

Claim 49 (New): The method of claim 42, whereby the bonding agent comprises magnesium sulphate or sodium polyphosphate.

Claim 50 (New): The method of claim 42, whereby the model is a metal casting mould.

Claim 51 (New): The procedure according to claim 42, wherein the step of drying begins after a sufficient amount of reaction time has elapsed.

Claim 52 (New): The procedure according to claim 42, wherein the casting mould is sufficiently dried so that boiling retardation is prevented.

Claim 53 (New): The procedure according to claim 52, wherein the casting mould is sufficiently dried so that boiling retardation is prevented.

Claim 54 (New): The procedure according to claim 42, wherein the bonding agent comprises 3 percent by weight water before the bonding agent is applied to the assembly platform.